



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10**

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SUPERFUND AND  
EMERGENCY MANAGEMENT  
DIVISION

October 26, 2020

The Honorable Leonard Forsman, Chairman  
Suquamish Indian Tribal Council  
18490 Suquamish Way  
Suquamish, Washington 98392

Dear Chairman Forsman:

I am writing to offer consultation and coordination with the Suquamish Tribe on the Environmental Protection Agency (EPA), Region 10's work at the Lower Duwamish Waterway Superfund Site, and in particular on a proposed Explanation of Significant Difference (ESD) for the Record of Decision at the site.

This proposed ESD will identify changes EPA expects to incorporate in the Selected Remedy. We are seeking input from the Tribe on the proposed changes. The changes stem from a 2017 toxicological review of benzo(a)pyrene by EPA's Integrated Risk Information System (IRIS) program. The review found that benzo(a)pyrene is less potent as a carcinogen than the IRIS program believed.

Benzo(a)pyrene was used in the Lower Duwamish Waterway human health risk assessment to estimate excess cancer risks posed by mixtures of carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The updated toxicological information means that our estimates of risks from direct contact with cPAHs in sediment and from consumption of clams containing cPAHs are reduced. In light of this, EPA believes it is appropriate to adjust the human health risk-based concentrations used as the basis for cPAH cleanup levels and remedial action levels for sediment, and to adjust the target tissue levels in clam tissue.

The changes do not affect ecological goals and will achieve the same level of human health protection as in the Selected Remedy, only at higher cPAH concentrations in sediment and seafood. EPA evaluated the effect of the changes on cleanup areas and costs and on expected outcomes of the remedy. Cleanup areas defined in the ROD are not expected to change significantly, because EPA's evaluation shows that areas where cleanup would have been required to address cPAHs in sediments also require cleanup to address other contaminants of concern, such as arsenic, PCBs, and dioxins/furans.

To provide additional background information and context, I am enclosing a fact sheet with background information on the Lower Duwamish Waterway Superfund site and a discussion of the basis and effect of the proposed ESD that is under consideration. EPA intends to propose the ESD for public comment in early 2021. The ESD will be issued in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act.

If the Suquamish Tribe wishes to schedule a government-to-government consultation regarding the proposed ESD, we respectfully request that your staff contact Wenona Wilson, Senior Tribal Policy Advisor for EPA Region 10, by Friday November 13, 2020 to work out logistics and to determine the agenda. Ms. Wilson can be reached by email at [Wilson.wenona@epa.gov](mailto:Wilson.wenona@epa.gov) or by phone at 206-331-1108.

If we do not hear from you, we will assume the Suquamish Tribe does not wish to engage in government-to-government consultation on this matter. We will, of course, continue to work with the Suquamish Tribe's technical staff and consider concerns raised at the staff level.

If you have any questions or wish to discuss, please feel free to call me directly at (206) 553-4141 or have your staff contact the Lower Duwamish Waterway project manager, Elly Hale. Ms. Hale can be reached by email at [hale.elly@epa.gov](mailto:hale.elly@epa.gov) or by phone at (206) 553-1215. Thank you for your consideration and time in reviewing this consultation offer.

Sincerely,

Calvin J. Terada  
Director

Enclosure: Fact Sheet

cc: Alison O'Sullivan  
Senior Biologist, Suquamish Tribe Fisheries

## **Summary of Explanation of Significant Differences Lower Duwamish Waterway Superfund Site**

### **Background:**

The Lower Duwamish Waterway (LDW) Superfund site is a five-mile long straightened segment of the Duwamish River. The waterway flows through northern Tukwila, between Seattle residential neighborhoods, Georgetown and South Park, and through Seattle's industrial core. The central portion of the waterway is a federally regulated to preserve water depth for vessel use. Industrial activities in and near the waterway over the last hundred years have led to sediments contaminated with toxic chemicals from many sources, including spills, stormwater runoff, sewage, wastewater discharge, and industrial practices. Contaminants of concern for humans are found in fish and shellfish resident to the waterway.

The waterway became a Superfund site in 2001. The Port of Seattle, Boeing, City of Seattle and King County completed a remedial investigation (including a human health risk assessment and ecological risk assessment), and feasibility study in 2012. The RI/FS study included computer modeling of expected changes in contamination levels in sediment as cleaner sediments from the Green River gradually cover contaminated sediments in parts of the waterway and as pollution source controls, upland cleanups, and sediment cleanups continue progress.

Key conclusions of the RI/FS study were:

- Human health risks are primarily related to consumption of contaminated seafood and by direct contact (incidental ingestion and dermal) with contaminated sediment during netfishing, clamming, and child play on specific beaches.
- The four human health contaminants of concern are polychlorinated biphenyls (PCBs), arsenic, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and dioxins and furans.
- Sediments in many areas of the waterway exceed Washington State's sediment standards for protection of ecological health, for PCBs, arsenic, and 39 other contaminants.

### **Record of Decision and Basis for Change:**

In November 2014, EPA documented its selected cleanup plan in a Record of Decision (ROD), following consultation and public comment on a proposed cleanup plan. The selected remedy involves dredging, capping, enhanced natural recovery and monitored natural recovery, with an estimated cost of \$342 million. The ROD includes remedial action levels, which trigger active cleanup, and cleanup levels, goals to be met after a period of natural recovery. It also includes target concentrations of the contaminants of concern in fish and shellfish.

In January 2017, EPA's Integrated Risk Information System (IRIS) program concluded its peer and public reviews and released an updated *Toxicological Review of Benzo(a)pyrene*. The review included an updated oral cancer slope factor for benzo(a)pyrene (BaP) of 1 milligram per kilogram per day (mg/kg-day), which is substantially lower than the previous slope factor of 7.3 (mg/kg-day)<sup>-1</sup>. This means that BaP is a less potent human carcinogen than previously estimated (in other words, for a given level exposure, the incidence of cancer should be lower than previously estimated). BaP is an index chemical used to estimate human cancer risks for mixtures of the seven carcinogenic PAHs.

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### **Specific Changes in ESD:**

The ROD for cleanup includes sediment remedial action levels, long-term cleanup levels, and target tissue levels in seafood (see ROD tables 20, 21, and 28). These levels are intended to reduce ecological risks and risks to humans who may be exposed to contaminated sediment during netfishing, clamming, and beach play.

The proposed Explanation of Significant Differences (ESD) will adjust these values to reflect the 2017 update of the BaP cancer slope factor in IRIS. The change in cPAH cancer potency means that the ROD can achieve the same risk level at higher concentrations of cPAHs.

This means that the cPAH concentrations based on target risks for netfishing, tribal clamming, beach play and seafood consumption will be higher in the ESD than in the ROD. Table 1 below lists how the remedial action levels, cleanup levels and target tissue levels will change. The changes affect Table 19, Table 21, and Table 28 of the ROD.

### **Effect of changes:**

The effect of the ESD on cleanup areas and costs appears to be minimal. Based on RI/FS data, levels of cPAHs above the action levels, whether in the ROD or ESD, occur in areas where levels of one or more of the other contaminants of concern will require cleanup.

The ROD does not include sediment cleanup levels tied to reducing clam tissue concentrations, because a reliable relationship between levels of cPAHs in sediment and clam tissue could not be established. The ESD does not change this aspect of the ROD. The ROD anticipates monitoring to assess clam tissue concentrations following cleanup of intertidal sediments to address the other contaminants of concern. The ROD anticipates continued institutional controls per the Washington State health advisory. The ESD does not affect ecological risk levels, which are not based on a cancer endpoint.

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<b>Table 1: ESD changes in ROD human health risk-based levels for cPAHs</b>				
	<b>units</b>	<b>ROD</b>	<b>ESD</b>	<b>Note</b>
<b>Sediment Cleanup Levels</b>		Table 19	Table 19A	Cleanup levels are 95%UCL
Clamming areas	µg /kg dw	150	1100	Applies across clamming areas sitewide, 45 cm depth interval
Beach Play areas	µg /kg dw	90	590	Applies to each of 8 beaches, 45 cm depth interval
Netfishing areas	µg /kg dw	380	2800	Applies sitewide to 0-10 cm depth interval
<b>Sediment Remedial Action Levels</b>		Table 28	Table 28A	RALS are point values
intertidal areas	µg /kg dw	900	5,900	45 cm depth interval. Applies to any intertidal area
sitewide	µg /kg dw	1,000	5,500	sitewide 10 cm depth
Recovery Category 1 areas, shoaled areas	µg /kg dw	1,000	5,500	0-60 cm depth interval, intervals
<b>Target Tissue Level</b>		Table 21	Table 21A	cPAH only has clam TTL
cPAH in clam tissue	µg /kg ww	0,24	1.5	Measured in eastern softshell clams